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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,102	01/11/2005	Robert A. Grigsby JR.	81,603	7053

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HUNTSMAN CORPORATION
Legal Department
10003 Woodloch Forest Drive
The Woodlands, TX 77380

EXAMINER

MCDONOUGH, JAMES E

ART UNIT	PAPER NUMBER
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1793

MAIL DATE	DELIVERY MODE
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10/16/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/521,102	Applicant(s) GRIGSBY ET AL.	
	Examiner JAMES E. MCDONOUGH	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 July 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 and 21-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 and 21-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/28/2008</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/28/08 has been entered.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-17 and 21-25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The subject matter of claims 1, 7, 12 and 21-25 is considered new matter because the examiner cannot find clear support, in the original specification, for the subject matter sought and applicants provide no guidance as to where any support can be found.

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The other claims are rejected because they depend on rejected claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-17 are rejected under 35 U.S.C. 103(a) as obvious over Soukup et al. (4,710,521) in view of Savoca et al. (5,238,894).

Soukup et al. teaches in the abstract, column 5, lines 20-29, column 6, line 36, column 8, lines 48+ and claim 5, a catalyst for making polyisocyanurate (from isocyanate and polyol) comprising a tertiary amine, a blowing agent and a trimer catalyst (alkali salt of carboxylic acid). This reference is silent with respect to the claimed specific amine component.

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Savoca et al. teaches in column 5, lines 1-68 that a tertiary amine, identical to the claimed amine of the present invention (i.e. N,N,N'-trimethyl-N'-hydroxyethylethylenediamine is the same molecule as instantly claimed), is a conventional tertiary amine in catalysts with hydroxyl functional groups used to make polyisocyanurate foams. Further the reference of Savoca has motivation to use hydroxytertiary amines instead of just tertiary amines (column 1, line 40 to column 2, line 51). The reference also teaches that the catalyst component (tertiary amine, similar to the claimed amine of the present invention) can be combined with other tertiary amines (i.e. triethylenediamine) and organotin compounds.

The prior art appears to disclose the invention as claimed on the basis of inherent property characteristics which render the claimed product obvious and the methods of contacting similar materials are also disclosed, therefore it would have been obvious to one of ordinary skill in the art to substitute one known amine compound currently on the market for another known amine compound currently on the market, in order to see if an improvement may be found over those of the prior art product.

Claims 1-17 are rejected under 35 U.S.C. 103(a) as obvious over Soukup et al. (4,710,521) in view of applicants own admission of page 1, lines 14-16 of the specification.

Applicants admit that that the claimed amine is known in the manufacture of polyurethane based (i.e. polyisocyanurate) foam products. As defined above, Soukup et

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al. is silent with respect to the claimed specific amine component. However, it is prima facie obvious to substitute one known amine for another that is to be used for the same purpose (making polyisocyanurate foam products).

Claims 21-25 are rejected under 35 U.S.C. 103(a) as obvious over either (1) Soukup et al. (4,710,521) in view of Savoca et al. (5,238,894) or (2) Soukup et al. (4,710,521) in view of applicants own admission of page 1, lines 14-16 of the specification.

With respect to claims 21 and 23, the temperature at which a chemical reaction is performed is considered to be a result effective variable because, it is well known in the art that reaction temperature controls reaction kinetics, and one of ordinary skill in the art would be expected to be able to adjust the temperature to arrive at an optimal temperature or range. In addition, Soukup teaches in column 6, line 16 that the formation of polyisocyanurate occurs at a temperature within the claimed range.

With respect to claim 22, the length of time under which a chemical reaction is performed is considered to be a result effective variable because, it is well known in the art that depending upon the exact reaction conditions, the time to completion of reaction will vary, and one of ordinary skill in the art would be expected to be able to determine the time it takes for a reaction to go to completion.

With respect to claims 24 and 25, the concentration of catalyst used in a chemical reaction is considered to be a result effective variable because, it is well

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known in the art that the concentration of catalyst used is critical as it is well understood that if not enough catalyst is used the reaction will not be catalyzed, and if too much catalyst is use this can lead to unwanted side reactions, and increase the cost of the process and the skilled artisan would have determined the optimal amount of catalyst to use base on the above considerations though routine experimentation in the art.

Furthermore, with respect to result effective variables MPEP 2144.05 [R-5] states:

A. Optimization Within Prior Art Conditions or Through Routine Experimentation

Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here file general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233,235 (CCPA 1955) (Claimed process which was performed at a temperature between 40°C and 80°C and an acid concentration between 25% and 70% was held to *be prima facie* obvious over a reference process which differed from the claims only in that the reference process was performed at a temperature of 100°C and an acid concentration of 10%.); see also *Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382 ('q-he normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimal combination of percentages."); *In re Hoeschele*, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969) (Claimed elastomeric polyurethanes which fell within the broad scope of the references were held to be unpatentable there over because, among order reasons, there was no evidence of the criticality of the claimed ranges of molecular weight or molar proportions.). For more recent cases applying this principle, see *Merck & Co. Inc. v. Biocraft Laboratories Inc.*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), *cert. denied*, 493 U.S. 975 (1989); *In re Kulling*, 897 F.2d 1147, 14 USPQ2d 1056 (Fed. Cir. 1990); and *In re Geisler*, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997).

Response to Arguments

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Applicant's arguments have been fully considered but are not persuasive.

With respect to the new claim limitations of the amine being capable of catalyzing a trimerization at elevated temperatures, it is noted that this is a property of the specific amine, and since the reference teaches the specific amine it would be expected to possess these properties absent any evidence to the contrary.

Applicants argue against the 112 rejection over claims 21-23.

Applicants argue that page 7 and figure 1, provide support for the new claim limitations. This is not persuasive because the examiner can not find support for these specific limitations in the specification or figure 1.

Applicants argue against the 103 rejection over Soukup in view of Savoca.

Applicants argue that the examiner has failed to provide a prima facie case of obviousness because the examiner has not compared and ascertained the differences between the prior art and the claims at issue. This is not persuasive because the prior art and the claims at issue have been compared to ascertain the differences, it is noted that the genus of the claimed amine is a tertiary amine containing a hydroxyl functionality, and it is further noted that the first tertiary amine with hydroxyl functionality noted N,N,N'-trimethyl-N'-hydroxyethylethylenediamine is identical to the claimed compound, and since they are identical compounds they would be expected to have

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identical chemical properties and utilities, and a prima facie case of obviousness does exist.

Applicants argue that the reference does not teach that the amine is capable of catalyzing a trimer reaction. This is not persuasive because the ability of a compound to be able to catalyze a given reaction is inherent to that compound and since the reference teaches the identical compound it is expected to have these properties absent any evidence to the contrary.

Applicants argue that they believe that it is the anion of Savoca's adduct that catalyzes the reaction. This is not persuasive because Savoca teaches, as admitted to by applicants that the catalyst is capable of trimerization, and the composition contains the specific amine of the instant invention, based on these arguments it appears that applicants are saying that their amine will not catalyze the trimerization, since they are stating that the same compound in the reference is not capable of trimerization.

Applicants argue that Savoca does not teach the amine alone without the boron compound. This is not persuasive and the skilled artisan would appreciate that the boron compound is added to the catalyst to decrease the vapor pressure and exposure to the semi-toxic foul odor of the tertiary amine (column 2, line 43 to column 3, line 18), and further the skilled artisan would appreciate that the adduct is in equilibrium with the free compounds.

Applicants argue that for something to be inherent the thing must necessarily occur. This is not persuasive are applicants arguing that the amine in the instant

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invention is capable of this catalysis but the identical compound of the reference can not?

Applicants argue that one of the tertiary amines used by both the reference and the instant applicants do not necessarily catalyze a trimer reaction. This is not persuasive because the genus is a hydroxytertiary amine and not just a tertiary amine. Further the reference of Savoca has motivation to use these hydroxytertiary amines (column 1, line 40 to column 2, line 51).

Applicants argue against the 103 rejection over Soukup in view of applicant's admission.

Applicants argue that page 1, lines 14-16 of the specification does not teach that the amine is capable of catalyzing the trimerization. This is not persuasive because applicants admit that this is a well known, frequently used catalyst for the manufacture of polyurethane based foams. The fact that the compound can catalyze trimerization reactions is inherent to the compound and does not need to be recognized at the time of invention to be able to anticipate or make obvious the claimed invention.

Applicants argue against the 103 rejection of claims 21-23 over Soukup in view of either Savoca or applicants admission.

Applicants argue that since the independent claims are not obvious that the dependent claims are also not obvious. This is not persuasive for the reasons given above.

Applicants argue against examiner's comments about figure 1. These arguments are not persuasive for at least the following:

- 1.) Figure 1 is nearly impossible to read as the lines are nearly all overlaid and the markings are hard to read.
- 2.) The same markings are used for more than one compound.
- 3.) Examiner can not determine the structures of all of the compounds based on the abbreviations given in the table.
- 4.) Examiner can not see that any other tertiary amines that also contain hydroxyl groups are used.
- 5.) No λ_{\max} is given, or what functional group this relates to, or how it is determined that an increasing absorbance is due to trimerization and not some other reaction.
- 6.) The first rise in absorbance, what is this attributed to?, is this not trimer forming?
- 7.) Why would a combination of two separate compounds that each are catalytic alone (i.e. metal salt and hydroxytertiary amine), not be expected to have a higher activity

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than a combination of one compound that is capable of catalyzing trimerization with another that is not (i.e. metal salt and tertiary amine).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES E. MCDONOUGH whose telephone number is (571)272-6398. The examiner can normally be reached on 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571)272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael A Marcheschi/
Primary Examiner, Art Unit 1793

JEM 9/9/2008